COURSE TABLE OF CONTENTS

Wireless Sensor Networks

OEM: Koenig Original • Duration: 3 Days (24 hrs)

COURSE MODULES & TOPICS

Module 1: Wireless Sensor Networks Fundamentals

- Introduction to wireless sensor networks
- Applications of WSN

Module 2: WSN Architecture and Topologies

- WSN architecture overview
- Sensor node components
- Network topologies

Module 3: Sensor Node Hardware and Power Management

- Sensor node hardware
- Power management techniques
- Embedded platforms

Module 4: Wireless Communication Technologies

- Zigbee fundamentals
- Bluetooth Low Energy (BLE)
- Wi-Fi in WSN
- LoRa communication

Module 5: Network Protocols and Data Transmission

- WSN network protocols
- Routing mechanisms
- MAC protocols
- Data transmission methods

Module 6: Data Collection and Monitoring

- Data collection techniques
- Data aggregation methods
- Monitoring in WSN

Module 7: Energy, Reliability, and Security

- Energy efficiency strategies
- Network reliability
- Security considerations
- Troubleshooting WSN

Module 8: WSN Design and Implementation

- WSN design case study
- Practical implementation

Module 9: Hands-on Labs and Practical Activities

- Wireless node configuration
- Sensor data transmission
- Receiver setup
- Node communication
- Environmental monitoring prototype